

# Bulletin

TECHNICAL INFORMATION /COMMERCIAL, GOVERNMENT & INDUSTRIAL SOLUTIONS SECTOR  
 8000 W. SUNRISE BLVD. / PLANTATION, FL 33322 /

SRN - 1347  
 APC - 432,466  
 Sept 2001

Memo To: SRN Mailing List

**Informational Only**

From: MTS2000 Subscriber Product Group  
 Subject: **In-Band High Level Intermodulation Enhancement for MTS2000 800MHz Radios**

Due to spectrum allocations that have placed commercial mobile radio service (“CMRS”) providers in the same band as Public Safety systems, some 800MHz Public Safety radios are experiencing interference in close proximity to CMRS sites. This interference can result in missed calls or unintelligible audio, even though the Public Safety receivers are operating in accordance with their published specifications.

**Cause:**

Intermodulation products of strong in-band signals (experienced close to CMRS sites) and the desired Public Safety signal may cause degraded receiver performance. APCO has published a “Best Practices” guide (available at <http://apointl.org/afc/800bpg.htm>, then click on “Best Practices Guide”) that suggests several approaches to this problem for new and existing systems (see Best Practices Guide, pages 11-14). If the problem cannot be resolved by the suggested methods, it is in some cases possible to improve the situation by modifying the Public Safety subscriber radios. This bulletin details modifications that can be made to the MTS2000 portable radio to improve its performance in high-level IM environments.

**Affected Radios:**

MTS2000 800MHz band radios.  
 Model: H01UCx9PW1xN

**Modifications:** The service manual referenced in this procedure is part number 68P81200C75-O.

*Part numbers are referenced below in table according to selected “Modification”.*

Summary Table	Serial Reference	Modification # 1	Modification # 2	Software	Q334
Radios Shipped before July 2000	432 or 466AAMxxxx and earlier	2113740A06		None Needed	
Radios Shipped from July 2000 thru October 00	432 or 466AANxxxx thru AAVxxxx		0662057A42 (R1) 0662057A73 (R5)	<b>Yes</b>	
Radios Shipped November 2000 & later	432 or 466AAWxxxx and later		0662057A42 (R1) 0662057A73 (R5)	None Needed	
Future MTS2000 Orders	Order No Charge Option	None Needed	None Needed	None Needed	<b>X</b>

**Modification # 1 - NUF6500C and older PC board modification**

1. Disassemble the radio in accordance with section 6 of the manual (pg. 29 – 33); kit number is located on the bar code label on the PCB as shown in Figure 1.
2. Remove Diode CR107 shown in Figure 1.
3. Place Capacitor part number 2113740A06 in place of the diode as shown in Figure 2. One end of the capacitor should bridge two of the diode pads.
4. Re-assemble the radio in accordance with section 6 of the manual (pg. 36 - 38).

If applicable, enter this information or note this bulletin number and subject material in the appropriate equipment instruction manuals and make necessary schematic diagram changes. Enter this bulletin in the correct MASTER and CLASSIFIED INDICES for future reference. **Labor or parts warranty reference is limited to products sold and in use in the United States, for products sold or in use internationally this bulletin is for informational purposes only.** Radios that are Agency Approved must follow designated agency guidelines.

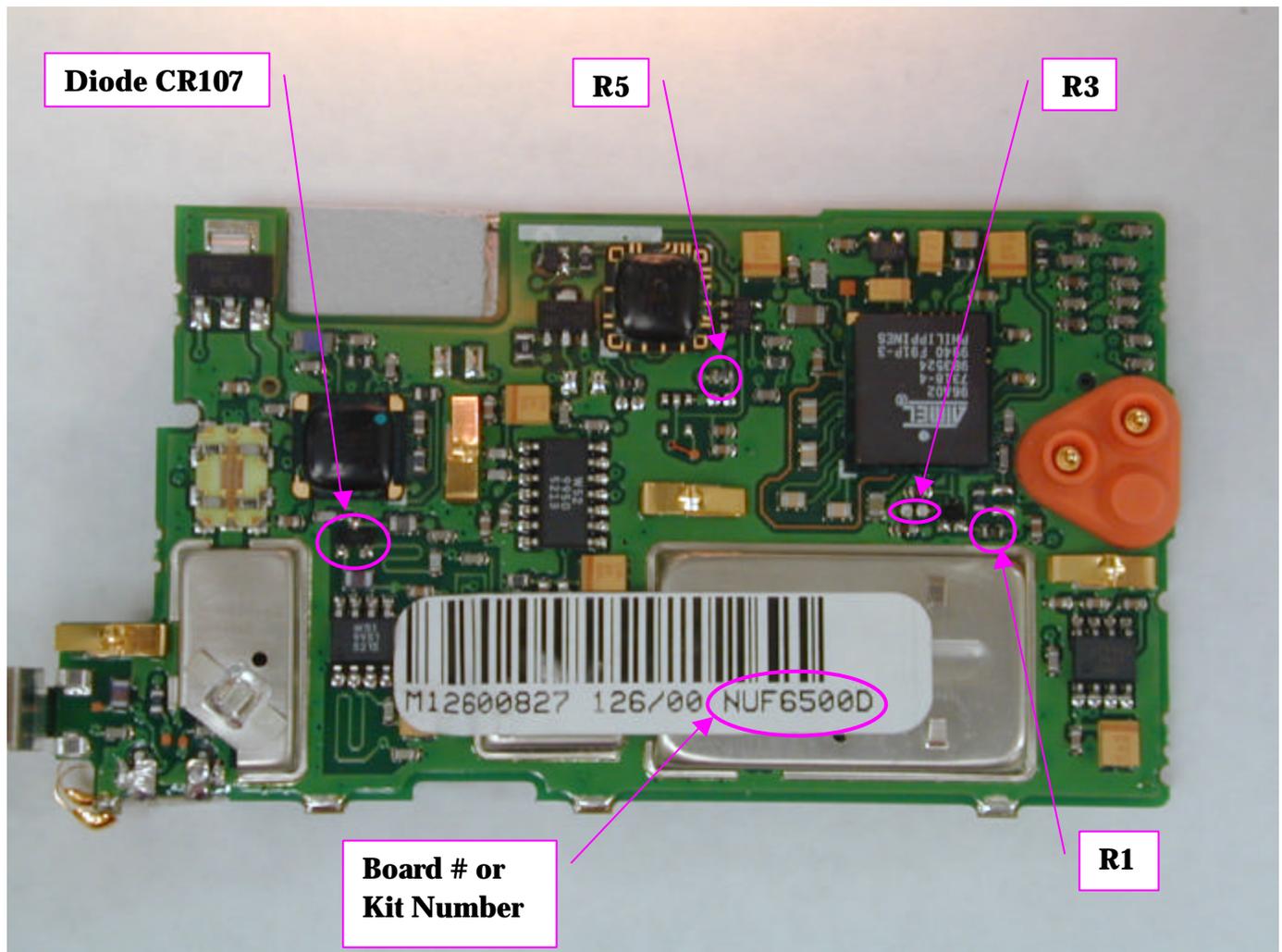
5. Perform basic Sensitivity and power test to verify radio's basic functionality.
6. No firmware changes are required for this modification.
7. When NUF6500C and older PC boards are modified as described here, increased receiver Hum & Noise may be noticed in extremely strong signal strength areas (-15 dBm and stronger). This Hum & Noise will be audible, but will not result in missed calls or unintelligible audio.

### ***Modification # 2 - NUF6500D PC board modification***

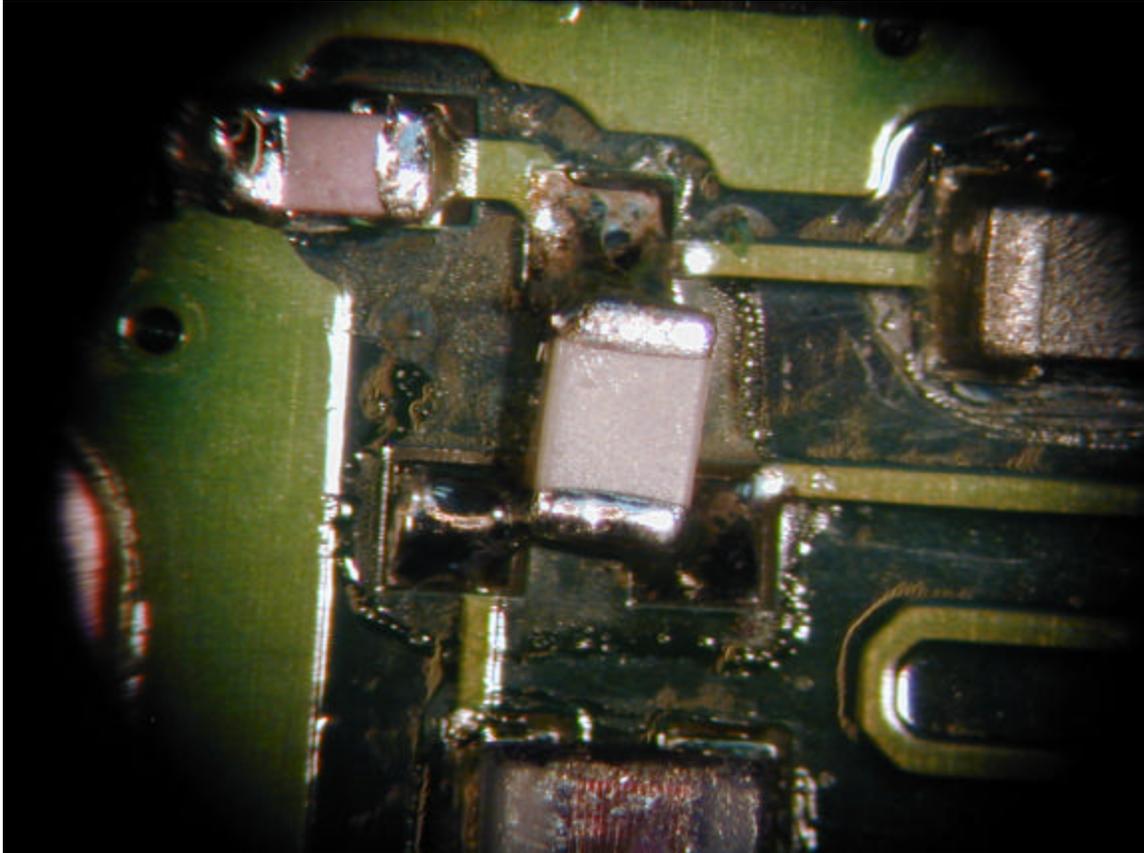
1. Disassemble the radio in accordance with section 6 of the manual (pg. 29 – 33).
2. Replace resistor R1 with part number 0662057A42
3. Remove resistor R3.
4. Place resistor R5, part number 0662057A73, in location shown in Figure 1.
5. Re-assemble the radio in accordance with section 6 of the manual (pg. 36 – 38).
6. If the **radio** contains **firmware older than R06.50**, upgrade the radio firmware to the latest release.
7. Perform basic Sensitivity and power test to verify radio's basic functionality

### ***Future MTS2000 Orders with option Q334 – will receive board NUF6533X PC board***

This board contains the enhancement as shipped from the factory.



## Figure 1 - Location of Components



**Figure 2 – Orientation of Capacitor part number 2113740A06**

**Note:** ONLY the Depot or other Factory Mutual Audited Service sites can service Intrinsically Safe FM Approved radios.

Motorola Radio Service Center > Contact CRC @ 1-800-227-6772 referencing SRN 1347: they will email or fax a copy of  
3761 S. Central Ave. the Depot Service Request Form. **On form note special pricing listed below.**  
Rockford, IL 61102

A special program pricing has been established for customers when using the Motorola depot for this enhancement either for FM or NON-FM MTS2000 portables. Price per radio is \* **\$62 (includes shipping, parts and labor)**. \* This price only applies to the work noted in modification described in this SRN. **NO General Repair included / radio must be fully operational before modification can be made.**

### **Ordering Info For Non-FM or Field Modifications:**

When purchasing modification piece parts, contact (AAD) Aftermarket Accessory Division (800-422-4210)

For radios shipped between **July 2000 and October 2000** you can register for this software by contacting the Florida Product group. Phone: 1-888-567-7347 / Prompts: 3-3-1

**Informational ONLY, No Labor or Parts Warranty Implied.**